EPSILON
EMPOWER YOUR CAREER
Training Institute

Quantitative Analyst

1) Learning Methodology

- Instructor-Led Classroom Training (ILT).

2) Prerequisites:

- Basic skills with at least one programming language are desirable.

3) Training Program Description:

- Complete real-world projects designed by industry experts, covering topics from asset management to trading signal generation. Master AI algorithms for trading, and build your career-ready portfolio.

- In this program, you'll analyze real data and build financial models for trading. Whether you want to pursue a new job in finance, launch yourself on the path to a quant trading career, or master the latest AI applications in quantitative finance, this program offers you the opportunity to master valuable data and AI skills.

What will you learn ?

- market mechanics and how to generate signals with stocks. Your first project is to develop a momentum trading strategy.
- get to know the workflow that a quant follows for signal generation, and also learn to apply advanced quantitative methods in trading.
- portfolio optimization, and financial securities formed by stocks such as market indices, vanilla ETFs, and Smart Beta ETFs.
- alpha factors and risk factors, and construct a portfolio with advanced portfolio optimization techniques.
- fundamentals of text processing and use them to analyze corporate filings and generate sentiment-based trading signals.
- advanced techniques to select and combine the factors that you've generated from both alternative data and market data.
- refine trading signals by running a rigorous backtest. You will know how to keep track of your P&L while your algorithm buys and sells.

- **Length of Program** : 150 Hrs.

TELEPHONE & FAX
+20 2 2274 9985
+20 11 22885566
+20 10 11933233

ADDRESS
EL-Serag Mall,
Building 1, Entrance 1,
Floor 11, Apartment 118
Nasr City, Cairo, Egypt

WEB
info@Epsiloneg.com
www.Epsiloneg.com

4) Projects

This program is comprised of many career-oriented projects. Each project you build will be an opportunity to demonstrate what you've learned in the lessons. Your completed projects will become part of a career portfolio that will demonstrate to potential employers that you have skills in data analysis and feature engineering, machine learning algorithms, and training and evaluating models.

One of our main goals at ETI is to help you create a job-ready portfolio of completed projects. Building a project is one of the best ways to test the skills you've acquired and to demonstrate your newfound abilities to future employers or colleagues. Throughout this program, you'll have the opportunity to prove your skills by building the following projects

Building a project is one of the best ways both to test the skills you've acquired and to demonstrate your newfound abilities to future employers. Throughout this program, you'll have the opportunity to prove your skills by building the following projects:

- **Project 1: Trading with Momentum**
- **Project 2: Breakout Strategy**
- **Project 3: Smart Beta and Portfolio Optimization**
- **Project 4: Multi-factor Model**
- **Project 5: Sentiment Analysis using NLP**
- **Project 6: Deep Neural Network with News Data**
- **Project 7: Backtesting**
- **Project 8: Combine Signals for Enhanced Alpha**

TELEPHONE & FAX
+20 2 2274 9985
+20 11 22885566
+20 10 11933233

ADDRESS
EL-Serag Mall,
Building 1, Entrance 1,
Floor 11, Apartment 118
Nasr City, Cairo, Egypt

WEB
info@Epsiloneg.com
www.Epsiloneg.com

5) Training Program Curriculum:

I- Python 3 Topics

- **Introduction**
  - syntax
  - data types and operations
  - I/O
  - Operators and bitwise
  - Lists
  - Tuples
  - If statements
  - For – while loops
- **Object-Oriented Programming (OOP)**
  - Special Functions
  - Strings
  - Classes
  - Inheritance
  - Regular expressions
  - Working with files
  - Python generators
  - Python Decorators
  - Exceptions
  - Regular expressions
  - Multithreading and multiprocessing Sockets and APIs
- **Introduction to Gui**
  - Gui grid
  - Gui events
  - Gui styles
- **Intro to data science**

TELEPHONE & FAX
+20 2 2274 9985
+20 11 22885566
+20 10 11933233
ADDRESS
EL-Serag Mall,
Building 1, Entrance 1,
Floor 11, Apartment 118
Nasr City, Cairo, Egypt
WEB
info@Epsiloneg.com
www.Epsiloneg.com

- Database with SQLite
- Numpy and matrix operations
- Pandas
- Matplotlib
- Building your own server
- Data visualization
- Git command line and GUI based
- Web Scraping for data collecting

II- Machine Learning Topics

- **Linear algebra**
- **Calculus**
- **Statistics**
- **Introduction to ML and Business cases**
  - The difference between ML, Big data, Data analysis and Deep Learning
  - Linear Algebra and Statistics for ML
  - Data preprocessing

- **Data preprocessing**
  - Importing libraries
  - Data acquisition
  - Data cleaning
  - Handling missing data
  - Categorical data
  - Data splitting
  - Feature scaling
- **Regression problem**

TELEPHONE & FAX
+20 2 2274 9985
+20 11 22885566
+20 10 11933233
ADDRESS
EL-Serag Mall,
Building 1, Entrance 1,
Floor 11, Apartment 118
Nasr City, Cairo, Egypt
WEB
info@Epsiloneg.com
www.Epsiloneg.com

- Linear Regression
- Multi-linear regression
- Polynomial regression
- K-nearest neighbour regression
- Decision tree regression
- Regression Evaluation Metrics

- **Classification problem**
  - Logistic Regression
  - Naive Bayes
  - K-nearest neighbour classifier
  - Support vector machine (SVM)
  - Decision tree classifier
  - Ensemble learning
  - Classification Evaluation Metrics
- **Clustering Problems**
  - Dimensionality reduction
  - K-means
  - DBSCAN
  - hierarchical clustering
  - Association Rules

- **Reinforcement learning**
  - Upper confidence bond
  - Thompson sampling
- **Model Selection and evaluation**
  - Loss functions
  - Gradient descent
  - Bias-variance tradeoff
  - Cross-validation
  - Hyperparameter tuning

TELEPHONE & FAX
+20 2 2274 9985
+20 11 22885566
+20 10 11933233

ADDRESS
EL-Serag Mall,
Building 1, Entrance 1,
Floor 11, Apartment 118
Nasr City, Cairo, Egypt

WEB
info@Epsiloneg.com
www.Epsiloneg.com

- **Result communication and report**

III- Data Structures & Algorithms Topics

- **Introduction**
  - How to Solve Problems
  - Big O Notation
- **Data Structures**
  - Collection data structures (lists, arrays, linked lists, queues, stack)
  - Recursion
  - Trees
  - Maps and Hashing
- **Basic Algorithms**
  - Binary Search
  - Sorting Algorithms
  - Divide & Conquer Algorithms
  - Maps and Hashing
  - Practice Problems: Randomized Binary Search, K-smallest elements using Heaps, Build Red-Black Tree, bubble sort, merge sort, quick sort, sorting strings, Linear-time median finding
- **Advanced Algorithms**
  - Greedy Algorithms
  - Graph Algorithms
  - Dynamic Programming
  - Linear Programming
  - Practice Problems: Graph Traversals, Diijkstra's Algorithm, Shortest Hops, A* Search, Longest Palindromic subsequence, web crawler

TELEPHONE & FAX
+20 2 2274 9985
+20 11 22885566
+20 10 11933233
ADDRESS
EL-Serag Mall,
Building 1, Entrance 1,
Floor 11, Apartment 118
Nasr City, Cairo, Egypt
WEB
info@Epsiloneg.com
www.Epsiloneg.com

IV- Quantitative Analyst Topics

- **Basic Quantitative Trading**
  - Introduction
  - Stock Prices
  - Market Mechanics
  - Data Processing
  - Stock Returns
  - Momentum Trading

- **Advanced Quantitative Trading**
  - Quant Workflow
  - Outliers and Filtering Signals
  - Regression
  - Time Series Modeling
  - Volatility
  - Pairs Trading and Mean Reversion

- **ETFs, Indices, Stocks**
  - Stocks, Indices and Funds
  - ETFs
  - Portfolio Risk and Return
  - Portfolio Optimization

- **Multi-factor Model**
  - Factors Models of Returns
  - Risk Factor Models

TELEPHONE & FAX
+20 2 2274 9985
+20 11 22885566
+20 10 11933233
ADDRESS
EL-Serag Mall,
Building 1, Entrance 1,
Floor 11, Apartment 118
Nasr City, Cairo, Egypt
WEB
info@Epsiloneg.com
www.Epsiloneg.com

- Alpha Factors
- Advanced Portfolio Optimization with Risk and Alpha Factors Models

- **Sentiment Analysis with Natural Language Processing**
  - Intro to Natural Language Processing
  - Text Processing
  - Feature Extraction
  - Financial Statements
  - Basic NLP Analysis

- **Advanced Natural Language Processing with Deep Learning**
  - Introduction to Neural Networks
  - Training Neural Networks
  - Deep Learning with PyTorch
  - Recurrent Neural Networks
  - Embeddings & Word2Vec
  - Sentiment Prediction RNN

- **Combining Multiple Signals**
  - Overview
  - Decision Trees
  - Model Testing and Evaluation
  - Random Forests
  - Feature Engineering
  - Overlapping Labels
  - Feature Importance

TELEPHONE & FAX
+20 2 2274 9985
+20 11 22885566
+20 10 11933233
ADDRESS
EL-Serag Mall,
Building 1, Entrance 1,
Floor 11, Apartment 118
Nasr City, Cairo, Egypt
WEB
info@Epsiloneg.com
www.Epsiloneg.com

- **Simulating Trades with Historical Data**
  - Overview
  - Intro to Backtesting
  - Optimization with Transaction Costs
  - Attribution

TELEPHONE & FAX
+20 2 2274 9985
+20 11 22885566
+20 10 11933233

ADDRESS
EL-Serag Mall,
Building 1, Entrance 1,
Floor 11, Apartment 118
Nasr City, Cairo, Egypt

WEB
info@Epsiloneg.com
www.Epsiloneg.com

EPSILON
EMPOWER YOUR CAREER
Training Institute

Duration:
150 Hours

Location:
Elserag Shopping Mall, Residential Building 1, Entrance 1, Floor 11, Makram Ebeid, Nasr City, cairo, Egypt

Contact US

To get more details Regarding special discount for groups.

FOR MORE INFORMATION:

Website: https://epsiloneg.com
E-mail: info@epsiloneg.com
Mobile: +2 01122885566 / +2 01011933233 / +20 2 22749985
Address: Elserag Shopping Mall, Residential Building 1, Entrance 1, Makram Ebeid, Nasr City, cairo, Egypt

CERTIFICATE

- Participants will be granted a completion certificate from Epsilon Training Institute, Delaware, USA if they attend a minimum of 80 percent of the direct contact hours of the Program and after fulfilling program requirements (passing both Final Exam and Project to obtain the Certificate)

REGISTRATION PROCEDURES

- Confirmation of registration is based on receipt of a Purchase Order or Registration Form.
- Training Program registrations will not be confirmed until registration is complete and billing information is received in full

PAYMENT TERMS AND METHODS

- Payment must be made prior to course commencement at Epsilon Training Center, Nasr City HQ
  - **In-Person**
    - In Cash to our address: Elserag shopping mall, Residential Building 1, Entrance 1, Floor 11
    - By cheque - Payable to: Epsilon Training center
  - **Bank transfer** to our ACC in:
    QNB ALAHLI Acc /20318280579-69 EGP Branch code / 00078
  - **Vodafone Cash** to 01011933233

REFUND

- Any cancellation must be done three (3) weeks prior to course commencement in order to receive a full refund of paid registration fees
- A 50% Cancellation Fees will be imposed for any course cancellation received within two (2) weeks or on the date of course commencement.
    - Refund Prior 3 weeks of the training program start date, 100% Refund
    - Refund Prior 2 weeks of the training program start date, 50% Refund of training program fees
    - Refund Prior 1 week of the training program start date, No Refund
- Any refund request should be requested by a documented email or in writing.

RECAP

- Recap is available for only 1 session with the available dates
- If you need to recap a session you attended already it will be paid for 200 LE per session with the available dates

POSTPONING

- Postponing only could be before the start of the training program with minimum 10 days

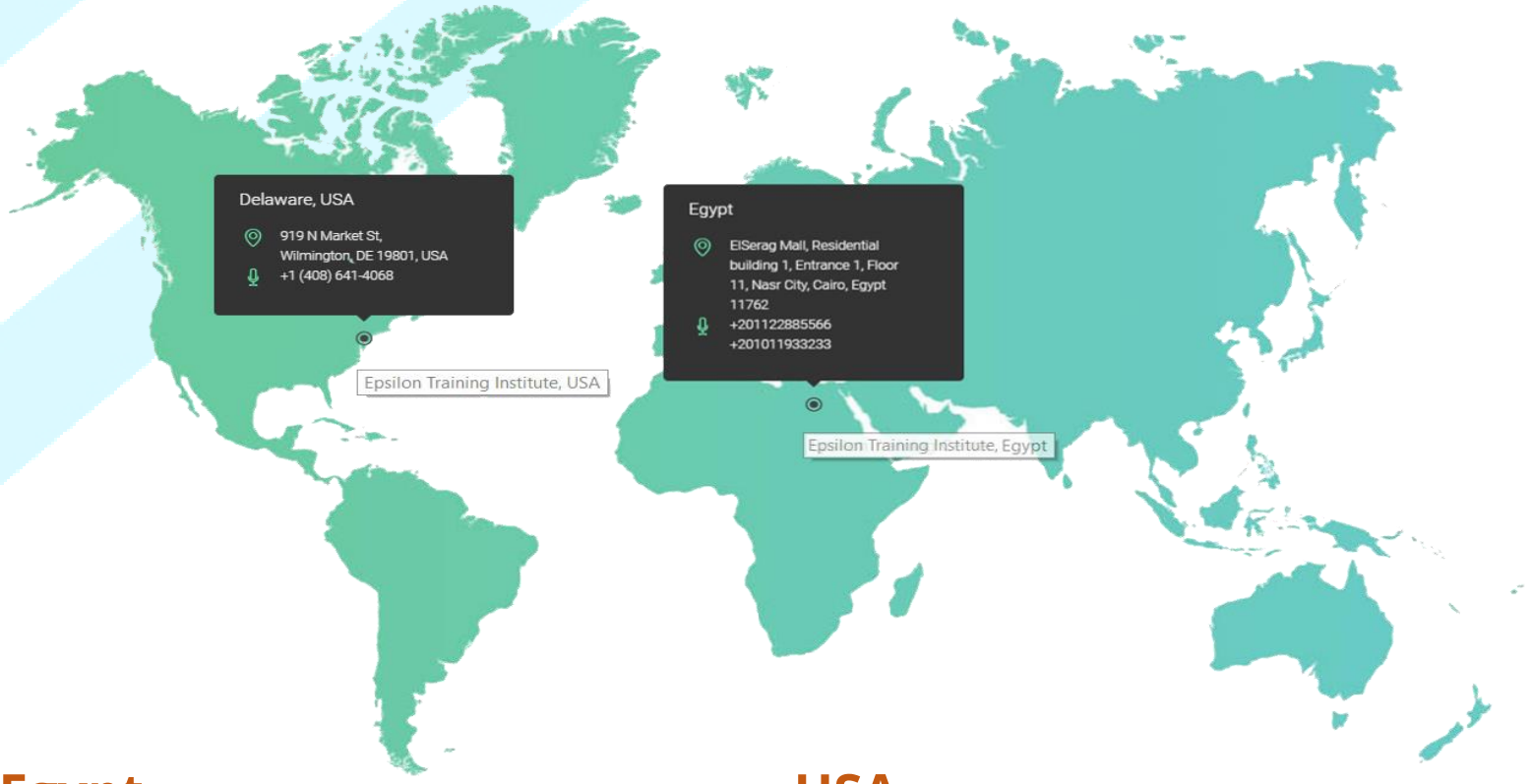
TELEPHONE & FAX
+20 2 2274 9985
+20 11 22885566
+20 10 11933233

ADDRESS
EL-Serag Mall,
Building 1, Entrance 1,
Floor 11, Apartment 118
Nasr City, Cairo, Egypt

WEB
info@Epsiloneg.com
www.Epsiloneg.com

EPSILON
EMPOWER YOUR CAREER
Training Institute

Get in Touch



Egypt

Location: Elserag Shopping Mall, Residential Building 1, Entrance 1, Makram Ebeid, Nasr City, cairo 11762
Telephone: +2 (011) 2288-5566 / +2 (010) 1193-3233 / +2 02 2274 9985
Website: https://epsiloneg.com
Email: info@epsiloneg.com

CR# 118268 TAX# 672-411-008

USA

Location: 919 N Market St, Wilmington, DE 19801
Telephone: +1 (408) 641-4068
Website: https://epsilonti.org
Email: info@epsilonti.org

CR# 7078427 TAX# 38-4095665

EMPOWER YOUR CAREER